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PREVENTION OF ANTHRAX AMONG INDUSTRIAL WORKERS.

ABSTRACT OF THE MEMORANDUM ON THE DISINFECTING STATION ESTABLISHED IN GREAT BRITAIN FOR DISINFECTION OF WOOL AND HAIR (FEBRUARY, 1921).

Because of a continued increase in the number of cases of anthrax in Great Britain, notwithstanding regulations introduced for the protection of operatives in factories, warehouses, etc., the Home Office appointed a committee to inquire into the question of anthrax in industries using wool and hair. In presenting its report in 1918, the committee recommended compulsory disinfection of raw material instead of the regulation of factory processes. A trial disinfecting station was erected, and operations were to have begun in the spring of 1921.

METHOD WORKED OUT EXPERIMENTALLY.

The memorandum deals with the process of disinfection worked out experimentally and the establishment and equipment of the trial station as recommended by the committee. The process of disinfection is fully described in volume 1 of the report referred to above.

Experimental investigation demonstrated the impracticability of disinfection in bales, except by methods which caused damage to the material; it also showed that anthrax spores are so well protected by nature that disinfection is untrustworthy, whatever the method adopted, unless this protection is removed.

The principle of the method of disinfection which was worked out, was to render the spores more susceptible to disinfecting agents by exposure of the material to an alkaline solution of soap at 102° F. (39° C.) for 30 minutes, in three stages of 10 minutes each, then disinfect with a 2 to 2½ per cent solution of formaldehyde at the same temperature for 20 minutes in 2 stages of 10 minutes each. The material is then dried, cooled, and rebaled.

THE TRIAL STATION.

Liverpool was selected as the site for the trial disinfecting station because the bulk of imported wool and hair arrives in Great Britain at that port and the water supply is very suitable for washing wool.

The plan and general arrangement of the trial disinfecting station made provision for—

1. Warehousing the materials on arrival.
2. Disinfection.
3. Rebaling.
4. Recovery of grease from the soapy effluent.

The station is driven by a steam-electric plant, and the exhaust steam from the engines is used for heating the liquids in the disinfecting machines and the air for the drying chamber.

The main building is about 340 feet long and 30 feet wide. The ground floor has the office, engine and generators, boilers, baling

press, grease-recovery room, and wool warehouse. The first floor contains the disinfecting and rebaling machinery, with storage space for disinfected material. The third story has the storage bins, part of the rebaling plant, and laboratories. All materials to be disinfected are handled before disinfection, as far as possible, mechanically. The feeding mechanism is inclosed and provided with an exhaust fan to prevent dust.

There are 5 baths, each 33 feet long and 4 feet wide, and fitted with squeezing rollers and mechanism which causes the material to pass through the liquids at proper speed. The first 3 are used for the preliminary treatment and incidentally for washing the material. These baths are specially built wool-washing machines. The last 2 baths, used for disinfection, are specially built carbonizing machines, and are air-tight to prevent the escape of formaldehyde gas. All 5 baths are arranged so that their contained solution may be maintained at the same strength. This solution in the first three baths is heated by direct admission of steam; in the last two by steam coils.

From the disinfecting machines the material passes into an ordinary wool-drying machine (specially designed to prevent the escape of formaldehyde vapors). The air for drying is raised to 220° F., although the wool itself never reaches a temperature higher than 160° F. The time in the drying machines is 15–20 minutes.

From the drying machine the wool is conveyed to the cooling machine, cooled in a current of cold air, and rebaled immediately.

The bales produced weigh about 300 pounds (the original weight of the bale is not given), and are given the same marks borne by the original bales.

GREASE RECOVERY.

The thin sludge from the first-process machines is automatically removed at short intervals and run through a machine to remove the wool fibers. The liquid then passes into a tank on the floor below, where the sand is separated. From this tank the liquid flows into tanks in which it is acidified with sulphuric acid, thus causing separation of the grease, which settles out. The grease sludge is transferred to cylinders raised to a temperature of 212° F., and then forced by air from an air compressor into a steam-heated filter press.

Machinery is provided to sterilize, wash, and dry clothes worn by workmen, and bale coverings taken from original bales.

The total cost of the equipment contained in the power plant, raw wool warehouse, disinfecting plant, wool-baling and delivery plant, grease-recovery plant, and miscellaneous equipment and services was £36,889.¹ The total building cost was £66,000.

¹ The American equivalents for English money are not given because of the varying exchange rate.

To provide against the possibility of infection to workmen they are provided with overalls, which are to be washed and sterilized in the station. Shower baths and lavatories are provided, as is also a mess room.

The capacity of the station is 1,000 pounds of clean, disinfected material per hour. The estimated cost of disinfection per pound of output is 2.75196 pence.

The memorandum contains an appendix giving the Anthrax Prevention Act of 1919, which provides for the prohibition of the importation of goods infected with anthrax, by orders in council, and gives the Secretary of State authority to provide for the disinfection of infected goods.

PUBLIC HEALTH INSTITUTES.

PRELIMINARY ANNOUNCEMENT REGARDING INSTITUTES TO BE HELD DURING 1922 UNDER THE AUSPICES OF STATE BOARDS OF HEALTH AND THE UNITED STATES PUBLIC HEALTH SERVICE.

THE AIM OF THE INSTITUTES.

In the fall of 1920 there was held in Washington an "Institute on Venereal Disease Control and Social Hygiene." More than 600 persons from all sections of the country attended the short intensive courses which were provided in the sociological, legal, psychological, and educational, as well as the medical aspects of this problem. Only within comparatively recent times has much attention been devoted to the venereal diseases; now extremely rapid developments are taking place. On that account the opportunity to come into personal contact with the leaders throughout the entire field was much appreciated and gave new impetus and direction to work then under way.

Rapid progress in the field of public health has not, however, been confined to the control of the venereal diseases. In child hygiene, industrial hygiene, the control of general communicable diseases, nutritional diseases, sanitary engineering, and other fields similar developments are occurring. From the treatment of disease, humanity has turned to its prevention, and every day discloses new needs, new opportunities.

With such a rapid advance the educational facilities for the training of workers have not kept pace. The result is that many persons who are employed in one capacity or another in public health work keenly feel the need for information concerning the results of the most recent scientific research and experience and for training in special subjects whose relation to their specific problem has only recently been understood. They desire to come into personal contact with those who are recognized as authorities in public health work.